We claim:

1. An apparatus for performing cadence detection on a signal, said apparatus comprising:
   - an input for receiving an input signal potentially manifesting a certain cadence;
   - a signal processing functional block coupled to said input for receiving the input signal, said signal processing functional block being operative to successively compute confidence level values over time during a processing period, a currently computed confidence level value being indicative of a likelihood of existence of a certain cadence in the input signal since a beginning of said processing period, said processing period being characterised by a variable duration;
   - said signal processing functional block including an output for generating an output signal indicative of the confidence level value at the end of said processing period.

2. An apparatus a defined in claim 1, wherein said signal processing functional block is operative to selectively terminate the processing period on the basis of the currently computed confidence level value.

3. An apparatus as defined in claim 1, wherein said signal processing functional block is operative to terminate said processing period when the currently computed confidence level value reaches a certain threshold.

4. An apparatus as defined in claim 1, wherein said signal processing functional block is operative to terminate said processing period when a duration of said processing period exceeds a certain value.

5. An apparatus as defined in claim 4, wherein said signal processing functional block is operative to terminate said processing period when the currently computed confidence level value and an amount of time remaining in the processing period before reaching said certain value indicate that the certain cadence is unlikely to be detected before reaching said certain value.

6. A method for performing cadence detection on a signal, said method comprising the steps of:

- receiving a signal potentially manifesting a certain cadence;
- successively computing confidence level values over time during a processing period, a currently computed confidence level value being indicative of a likelihood of existence of a certain cadence in the input signal since a beginning of said processing period, said processing period being characterised by a variable duration;
- generating an output signal indicative of the confidence level value at the end of said processing period.

7. A method a defined in claim 6, comprising the step of selectively terminating the processing period on the basis of the currently computed confidence level value.

8. A method as defined in claim 6, comprising the step of terminating said processing period when the currently computed confidence level value reaches a certain threshold.

9. A method as defined in claim 6, comprising the step of terminating said processing period when a duration of said processing period exceeds a certain value.

10. A method as defined in claim 9, wherein said signal processing functional block is operative to terminate said processing period when the currently computed confidence level value and an amount of time remaining in the processing period

before reaching said certain value indicate that the certain cadence is unlikely to be detected before reaching said certain value.

11. A method for performing cadence detection on a signal, said method comprising the steps of:

- receiving an input signal potentially manifesting a certain cadence;
- processing said signal to successively compute confidence level values over time during a processing period, a currently computed confidence level value being indicative of a likelihood of existence of a certain cadence in the input signal since a beginning of said processing period;
- controlling a duration of said processing period on a basis of the currently computed confidence level value.

12. A method as defined in claim 11, comprising the step of terminating the processing period when the currently computed confidence level value reaches a predetermined threshold.

13. A method as defined in claim 11, wherein the duration of said processing does not exceed a certain value.

14. An apparatus performing cadence detection on a signal, said apparatus comprising:

- an input for receiving an input signal potentially manifesting a certain cadence;
- a signal processing functional block for processing said signal to successively compute confidence level values over time during a processing period, a currently computed confidence level value being indicative of a likelihood of existence of a certain cadence in the input signal since a beginning of said processing period;
- a duration control unit for controlling the duration of said processing period on a basis of the currently computed confidence level value.

15. An apparatus as defined in claim 14, wherein said duration control unit is operative to terminate the processing period when the currently computed confidence level value reaches a predetermined threshold.

16. An apparatus as defined in claim 14, wherein the duration of said processing does not exceed a certain value.

17. A tone detection apparatus suitable for detection of call progress tones, a call progress tone being characterised by at least one frequency component and a timing behaviour defining a certain cadence, said apparatus comprising:

- an input for receiving an input signal potentially containing a call progress tone, the signal being capable of being divided in a plurality of consecutive sections;
- a spectral processing unit for processing said signal to generate a plurality of sets of data elements, the sets of data elements providing spectral information about respective sections of the input signal;
- a frequency component processing unit coupled to said spectral processing unit for receiving sets of data elements and for processing the sets of data elements to output sets of classification data elements indicating whether a frequency component of a certain call progress tone exists in respective sections of the input signal;
- a cadence processing unit coupled to said frequency component processing unit for receiving and processing sets of classification data elements to compute over time successive confidence level values for the input signal during a processing period encompassing the sections of the input signal that correspond to the sets of classification data elements processed by the cadence processing unit, a currently computed confidence level value being indicative of a likelihood of existence of a certain cadence in the input signal since a beginning of said processing period,

said processing period being characterised by a variable duration;

- said cadence processing unit including an output for generating a signal indicative of the confidence level value at the end of said processing period.

18. An apparatus a defined in claim 17, wherein said cadence processing unit is operative to selectively terminate the processing period on the basis of the currently computed confidence level value.

19. An apparatus as defined in claim 17, wherein said cadence processing unit is operative to terminate said processing period when the currently computed confidence level value reaches a certain threshold.

20. An apparatus as defined in claim 17, wherein said cadence processing unit is operative to terminate said processing period when a duration of said processing period exceeds a certain value.

21. An apparatus as defined in claim 20, wherein said signal processing functional block is operative to terminate said processing period when the currently computed confidence level value and an amount of time remaining in the processing period before reaching said certain value indicate that the certain cadence is unlikely to be detected before reaching said certain value.

22. A method for performing tone detection suitable for the detection of call progress tones, a call progress tone being characterised by at least one frequency component and a timing behaviour defining a certain cadence, said method comprising the steps of:

- receiving an input signal potentially containing a call progress tone, the signal being capable of being divided in

a plurality of consecutive sections;

- processing said signal to generate a plurality of sets of data elements, the sets of data elements providing spectral information about respective sections of the input signal;
- processing the sets of data elements to output sets of classification data elements indicating whether a frequency component of a certain call progress tone exists in respective sections of the input signal;
- processing said sets of classification data elements to compute over time successive confidence level values for the input signal during a processing period encompassing the sections of the input signal that correspond to the sets of classification data elements processed by the cadence processing unit, a currently computed confidence level value being indicative of a likelihood of existence of a certain cadence in the input signal since a beginning of said processing period, said processing period being characterised by a variable duration;
- generating a signal indicative of the confidence level value at the end of said processing period.

23. A method a defined in claim 22, further comprising the step of selectively terminating the processing period on the basis of the currently computed confidence level value.

24. A method as defined in claim 22, wherein said terminating step terminates said processing period when the currently computed confidence level value reaches a certain threshold.

25. A method as defined in claim 22, wherein said terminating step terminates said processing period when a duration of said processing period exceeds a certain value.

26. A method as defined in claim 25, wherein said terminating step terminates said processing period when the currently computed confidence level value and an amount of time remaining

in the processing period before reaching said certain value indicate that the certain cadence is unlikely to be detected before reaching said certain value.

27. A tone detection system for use in a telecommunication network comprising the apparatus defined in claim 1.

28. A tone detection apparatus suitable for detecting call progress tones, a call progress tone being characterised by a sequence of states, said apparatus comprising:

- an input for receiving an input signal potentially containing a call progress tone, the signal being capable of being divided in a plurality of segments;
- a spectral processing unit for processing said signal to generate a plurality of sets of data elements, the sets of data elements providing spectral information about respective segments of the input signal;
- a logical processing unit coupled to said spectral processing unit for receiving and processing the sets of data elements, said logical processing unit being operative to compute over time successive classification elements for respective segments of the input signal, each of the successive classification elements indicating whether the properties of the signal during the time segment match the properties of a certain state of a certain call progress tone;
- said logical processing unit including an output for generating a result signal representative of the classification element computed by said logical processing unit.

29. An apparatus as defined in claim 28, wherein said logical processing unit further comprises a non-linear filtration unit, said non-linear filtration unit comprising, an input for receiving successive classification elements, said non-linear

filtration unit being operative to process said successive classification elements in order to produce a result signal, said result signal containing substantially less variation than said successive classification elements.

30. An apparatus as defined in claim 29, wherein said non-linear filtration unit is operational to apply a median filtering operation to said successive classification elements.

31. A method for detecting call progress tones, a call progress tone being characterised by a sequence of states, said method comprising the steps of:

- receiving an input signal potentially containing a call progress tone, the signal being capable of being divided in a plurality of segments;
- processing said signal to generate a plurality of sets of data elements, the sets of data elements providing spectral information about respective segments of the input signal;
- processing the sets of data elements to compute over time successive classification elements for respective segments of the input signal, each of the successive classification elements indicating whether the properties of the signal during the time segment match the properties of a certain state of a certain call progress tone;
- generating a result signal representative of the classification element computed by said logical processing unit.

32. A method as defined in claim 31, further comprising a non-linear filtration step, said non-linear filtration step further comprising the steps of:

- receiving successive classification elements;
- processing said successive classification elements in order to produce a result signal, said result signal containing substantially less variation than said successive classification elements.

33. A method as defined in claim 32, wherein said non-linear filtration step is operational to apply a median filtering operation to said successive classification elements.